

## REMARKS

This is a fully and timely response to the Office Action mailed on November 30, 2005. In this amendment, claims 1, 5, and 10 are amended. After entry of the foregoing amendments, claims 1-14 and 28-32 remain pending. For at least the following reasons, it is submitted that this application is in condition for allowance.

The Office Action rejected claims 1-14 and 28-32 under 35 U.S.C. § 103 as allegedly obvious over the combination of AAPA (Fig. 2) in view of any one of Nishino et al, Kurisu, Packard, Melwisch and Wagner and further in view of Nicholson (U.S. patent 6,486,818). Applicants respectfully request reconsideration and withdrawal of these rejections for at least the reasons set forth below.

Applicants' amended independent claim 1 recites:

1. An AFE (analog front end) device of a LCD controller with adjustable bandwidth filtering functions, the AFE device comprising an input buffer for buffering an analog signal and an ADC (analog-to-digital converter) for converting the analog signal into a digital signal, the ADC having the adjustable bandwidth filtering functions and comprising:

a capacitor for sampling and holding the analog signal; and  
a switch module serially coupled to the capacitor, the switch module comprising a plurality of transistor switches coupled in parallel, wherein at least one of the transistor switches is selected as an equivalent resistor according to one of a plurality of selection codes, so as to constitute a filter circuit together with the capacitor;

wherein the one of the selection code is corresponding to one of a plurality of designate filtering bandwidths of the AFE device;

wherein when another of the selection codes is applied, the designate filtering bandwidth of the AFE device is changed accordingly.

*(Emphasis added.)* Applicant submits that claim 1 defines over the cited art for at least the reason that the cited art fails to disclose those features emphasized above.

With regard to the feature of the plurality of transistor switches, the Office Action cites certain teachings of Nicholson. However, Nicholson's recites:

"Assume for purposes of explanation that the digital signal to be converted to an analog signal is N bits wide. The analog conversion of the M Most Significant Bits of the digital input signal is derived from the voltages on

the nodes between adjacent resistors in a primary resistor string of series connected resistors  $R_0$  through  $R_{M-1}$ . For the M bit primary segment, there will be  $2^M$  identical resistors in the primary chain, and the multiplexer (decoder) will be a  $2^M$  to 1 configuration. The voltage of the desired node between resistors is selected by applying the M Most Significant Bits of the digital input signal to the multiplexer, the output of which determines which one of the switches, typically MOS switches, each coupled to a respective resistor node, is on."

(see col. 2, lines 28-41).

As described, Nicholson's switches are controlled by the signal output from the multiplexer in Fig. 1. The multiplexer (decoder) is a  $2^M$  to 1 configuration, and the signal output from the multiplexer is related to the value of the M most significant bits of the digital input signal. The signal output from the multiplexer selects the voltages on the nodes between adjacent resistors in a primary resistor string of series connected resistors  $R_0$  through  $R_{M-1}$ , so as to complete the analog conversion of the M most significant bits. Since the on/off state of Nicholson's switches is responsive to the M most significant bits, which is the digital data to be analog converted, Nicholson discloses neither "the ADC having the adjustable bandwidth filtering functions", nor "at least one of the transistor switches is selected as an equivalent resistor according to one of a plurality of selection codes, so as to constitute a filter circuit together with the capacitor; wherein the one of the selection code is corresponding to one of a plurality of designate filtering bandwidths of the AFE device; wherein when another of the selection codes is applied, the designate filtering bandwidth of the AFE device is changed accordingly", as expressly defined in Applicants' amended claim 1.

Since the feature mention above in the amended claim 1 is wholly lacking from AAPA, any one of Nishino et al, Kurisu, Packard, Melwisch and Wagner, and the cited Nicholson reference, even if properly combined, the AAPA, any one of Nishino et al, Kurisu, Packard, Melwisch and Wagner, and Nicholson fail to teach all of the claimed features of

Applicants' claim 1. Therefore, the rejection should be withdrawn for at least the foregoing reasons.

Independent claims 5 and 10 recite similar elements, and therefore for similar reason, it is submitted that independent claims 5 and 10 patentably define over the cited art. For at least the same reasons, claims 2-4, 6-9, and 28-32 dependent therefrom are patentable.

In view of the amendments and foregoing discussion, Applicants respectfully submit that all pending claim 1-14 and 28-32 are in condition for allowance.

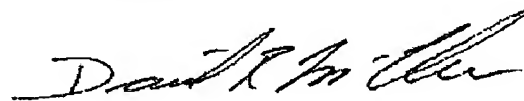
Should the Examiner believe that a teleconference would expedite the examination of this application, then the Examiner is invited to contact the undersigned attorney.

No fee is believed to be due in connection with this amendment and response to Office Action. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully Submitted,

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